

CHAPTER 1

Introduction to innovation

Welcome to *Innovation in Action*, a guidebook designed to provide insight, concepts, and tools for creating and testing new ideas (or redesigned old ideas) for healthcare. It is intended to help its users transform the practices and products that they use in their everyday delivery of healthcare and create value in the systems in which they work.

Tips for Innovation

1. Aim for simplicity
2. Think in verbs, not nouns
3. Build on ideas of others
4. Create an idea "treasure box"
5. Think both spatial as well as process change
6. Brainstorm often
7. Bring people together

What is innovation?

Innovation is "the first, practical, concrete implementation of an idea done in a way that brings broad-based, extrinsic recognition to an individual or organization."¹ Innovation goes beyond creativity, which is the production of ideas, to focus on implementation of ideas that bring value to individuals and organizations. It is a rare that innovations comes as "a bolt out of the blue" but more commonly, as Peter Drucker notes, are the result of "a conscious, purposeful search for innovation opportunities."² He emphasizes

that innovation is a “systematic practice” that draws insights and ideas from interdisciplinary groups who see the innovation challenge from multiple perspectives. Unlike invention, innovation is first and foremost, a value-driven team set of processes with focused objectives.

Building Innovation into Health Systems: Memorial Hospital and Health System. Memorial Hospital and Health Systems in South Bend, IN (www.qualityoflife.org), through senior leadership recognized that they were afflicted by a “creeping sameness,” faced a war for talent, and were financially challenged by local competitors that were eating at their margins. Bringing innovation into their business model allowed them to all three of these. Leadership organized “innovisits” to regional organizations in and outside of healthcare recognized for their innovation (e.g., Proctor & Gamble), established board level policies that set expectations for innovation throughout the organization, created a system training program (Wizards College) in innovation for all level of staff, built innovation into job descriptions, and provided support through “idea propulsion labs” where “WoW projects were worked on.” Memorial tracks costs and return on investments (ROI) for all innovation projects as a board expectation. ROI estimates range from 1.2 to 3.0 (120–300% return).

So why innovation? It is now acknowledged that the quality of healthcare in United States is average at best. For instance, a study by RAND³ suggests that adults are receiving only 54.9% of recommended care (prevention, acute care, chronic services). “The need for change” as suggested by the RAND report “leads directly to the need for ideas for change.”⁴

Innovation is distinctly different from invention—that is, the creation of something new. Innovation on the other hand requires that the new idea or creation is used and provides value to the users. It is fundamentally a team sport that involves people and ideas from multiple disciplines focused on an aim. As Peter Drucker has described it, innovation is a true discipline. Becoming an effective practitioner of innovation takes practice. As described

by Peter Denning,⁵ there are eight foundational practices for an innovator.

- *Awareness*: Ability to perceive opportunities, distinguishing them from your own agenda, ability to overcome cognitive blindness
- *Focus and persistence*: Ability to maintain attention on innovation challenge amidst chaos and obstacles
- *Listening and synthesizing*: Ability to hear others ideas, needs, preferences, and to blend them together with your own to create new ideas
- *Declarations*: Ability to make simple, powerful, moving, eloquent statements about the future that serve as attractors for others
- *Destiny*: A sense of the future and of possibilities that is powered by a larger purpose
- *Offers*: Bring value to your customers and stakeholders. Ability to deliver with commitment to results
- *Networks and allies*: Ability to build and maintain productive relationships with others, especially representing different perspectives and skills
- *Learning*: Constantly seeking new ideas, skills, and experiences from traditional and nontraditional sources; a mindset of inquiry

Beyond the distinction between innovation and invention, there are four myths about innovation of which to remain aware. These include (a) innovations must be big—often the most successful innovations are small, (b) innovations are the work of a gifted few—anyone can learn the skills and practice of innovation, (c) innovations are about new ideas—innovations are often old ideas in new uses or new audiences, and (d) innovations are only applicable to commercial markets—innovations are applicable in all settings (business, education, government, nonprofit, etc.).

Why is innovation so hard in healthcare

The United States spends over \$26 billion on research and development in healthcare, second only to defense research and development.^{6,7} Yet examples of disastrous failures abound in healthcare—ranging from the various efforts to use managed care methods to manage costs, stock market losses of biotech start-ups, and the painfully slow digitalization of healthcare delivery—represent high stakes and high investment that yielded little in terms of innovations. Herzlinger⁷ describes healthcare innovation in three sectors: consumer, technology, and business model.

She goes on to describe six forces that promote or kill innovation in healthcare. These are:

- *Players*: The diversity of stakeholders within healthcare is broad. Each has his or her own agendas and various degrees of influence on policymaking and resource allocation. Turf wars between hospitals and doctors and between consumers and health plans as well as other large and small battles compromise efforts to bridge differences and create space for innovation.
- *Funding*: Two financial challenges confront healthcare innovators. First, technology and pharmaceutical innovations require long lag times and rigorous Federal scrutiny before they are market ready. Second, the current reimbursement models are aimed at controlling cost, not supporting innovation. Insurers' benefit coverages are slow to integrate new technologies and innovations into their package of reimbursables.
- *Policy*: Healthcare is a highly regulated industry. These regulations can deter innovation development or dissemination of new technologies, drugs, or services. For example, the Stark Anti-Kickback statutes limited the ability of hospitals and affiliated office practices to collaborate on purchasing and supporting electronic health record systems.
- *Technology*: New technologies in healthcare are entering the market at lightning speed. Over the last 40 years, new technologies have accounted for 20–40% of the explosion of healthcare expenditures in the United States.⁶ This “technological imperative,” as Burns has described, is based on patient and provider demand for technologies that do not translate into healthcare value. Because of coverage and other issues, adoption of these technologies is highly variable, dependent on both market and interpersonal forces that are often difficult to predict with a particular technology. For instance, MRI scanners were highly market driven when introduced, leading to rapid uptake by the medical community. On the other hand, electronic information technologies are highly interpersonal driven, resulting in slower uptake.
- *Customers*: Over the last two decades, the role of the consumer has dramatically changed—from a passive, unknowing recipient of healthcare to a more active, informed manager of their own healthcare and healthcare dollars. For example, the rise of consumer-driven healthcare plans has ridden both the consumer's greater involvement and employers desire for lesser involvement. Direct-to-consumer marketing has changed the

relationship between the patient and the provider, creating new opportunities for consumer-directed innovation.

- *Accountability:* Increasingly, healthcare providers, institutions, and payers are being held to standardized metrics of performance, often publicly reported. Moreover, these levels of performances are being incentivized through such programs at Bridges to Excellence or the Medicare Value-based purchasing initiatives. Thus, innovators are faced to helping potential users meet these performance demands.

These are the major forces with which the innovator must contend to be successful in bringing a creative idea to market and provide value to users.

Design thinking

Innovation is fundamentally a process of design. Specifically, innovation begins and ends with design for a user based on an understanding of the user's needs. It is differentiated from the practice of invention, in both being a team-based process and the primacy of the user in the design process. Figure 1.1 presents a model of design thinking and innovation developed by IDEO Inc.

Technological designers of products in healthcare start with optimizing feasibility of their product innovation, and then work on how to make it useful for people (desirability) and how to how to make a profit from their innovative product (viability). Business strategists design new business models and services and how to

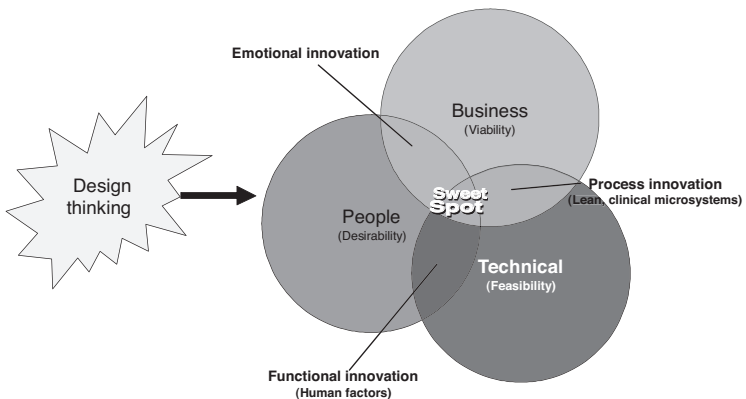


Figure 1.1 Model of design thinking.

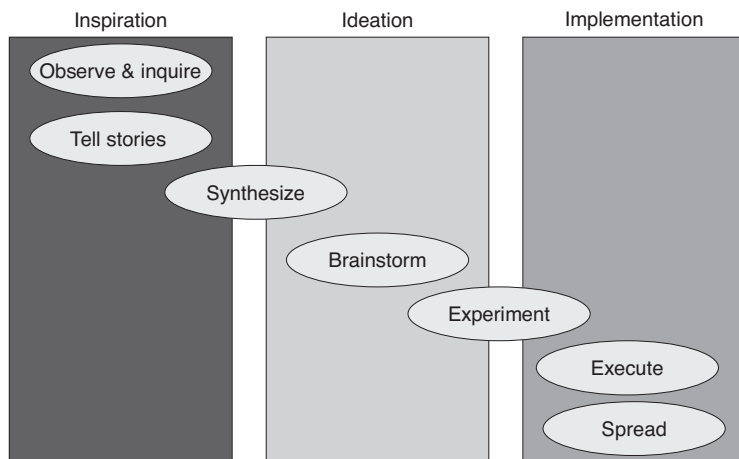


Figure 1.2 Phases of innovation.

effectively integrate technological tools into their offerings. Their focus is on “emotional innovation” or branding with a customer base.

Healthcare designers, on the other hand, start with what people need and desire, and then define the technical and/or service innovations that meet these needs. The approaches and tools described in Chapter 3 are geared to aiding the healthcare innovator to get into the heads, hearts, and lives of patients, caregivers, and providers in order to understand deeply where innovation might have the greatest impact (and market share). Healthcare organizations seeking to innovate often start at looking for the best ideas to prototype and take to market. There is a phase of innovation that precedes finding the best ideas that is finding inspiration through observation, inquiry, and storytelling that illuminates and informs the process of generating ideas (Figure 1.2). Once inspiration for innovation is discovered, the creative process of finding new ideas proceeds through synthesis of what is known, brainstorming ideas, and starting to experiment and prototype. Finally, as prototypes are tested, the usable/marketable form of the innovation emerges around which a business and marketing plan can be designed to expand the reach of the new product or service.

The innovation model

This guidebook is drawn from the work of IDEO, Inc, which is an internationally respected design firm headquartered in Palo

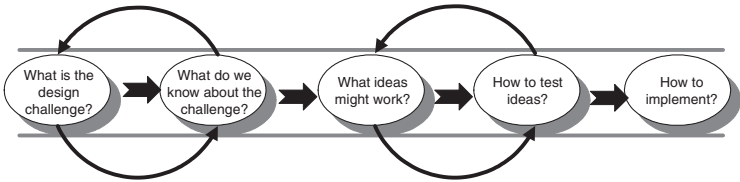


Figure 1.3 A model of innovation in action.

Alto, CA (see the IDEO website for information on their work: www.ideo.com). Considered one of the top 20 innovative companies in the world, IDEO devotes much of its corporate energy in assisting other companies develop a culture of innovation. This guidebook follows to an innovation model employed by IDEO⁸ that includes a five-step process:

- Defining the innovation challenge
- Understanding the innovation challenge
- Generating innovative ideas
- Prototyping
- Making your innovation visible to others

This model suggests that the innovation process has its genesis in defining an existing or new need of a healthcare situation. A variety of tools and methods are then applied to examine the process and the user's experience of the process in order to better understand the needs of the user and the potential change points. This enhanced understanding of the innovation challenge generates new ideas to address the challenge from which the ideas with the highest potential are harvested and shaped into testable prototypes that can be experiential, mathematical, or physical (e.g., scale models). Rapid cycle testing of these prototypes allows the innovator to know if their idea would fly or not. If it would fly, the last step in the process is getting others inside and outside the organization to understand and support further development of the idea.

Although presented as a linear vector, these steps are often highly iterative. For instance, the prototyping and testing of an idea may generate a number of other, potentially better ideas. Or, in the process of assessing what is understood about an innovation challenge, there may be new questions about the aim or objective of the innovation.

This is a focused action model. It is not intended to portray the full lifecycle of an innovation that would also include organizational

policy and leadership inputs, as well as a range of marketing strategies that would close the entrepreneurial loop.

Innovation teams

Innovations grow from a diversity of perspectives, knowledge, and experiences. In fact, innovation can be viewed as largely intersectional in which these different inputs are intermingled, producing an often unexpected array of new ideas, new products, and new services. The intersectional effect on innovation is called the Medici effect, first coined by Frans Johansson.⁹

As you organize for innovation in your workplace, put a team together that reflects a wide diversity of perspectives and backgrounds. These may be technicians, clinicians, administrators, clerical staff, and patients. Consider bringing in outside individuals who bring complementary perspective and skills such as people with communication expertise and marketing skills or individuals from other industries such as the hotel industry and manufacturing. For instance, Greater Ormond Hospital in London brought in race car pit crews to help them redesign their trauma services.

Tom Kelley from IDEO has proposed another way of thinking about diversity of innovation teams. He describes in his book, *The Ten Faces of Innovation*,¹⁰ three major personas and 10 “faces” or personalities that invigorate the innovation process. Table 1.1 presents and describes these 10 faces. Kelley emphasizes that these are characteristics rather than characters: that is, that any one person can be any of the 10 faces over the course of time. He also emphasizes that not all 10 need be present on an innovation team to make it successful. Instead, the 10 faces approach is a guide for the type of roles that make innovation teams go.

An optimum team is 8–10 individuals with a team lead who plays the role of the director, and keeps the team on track and on schedule. Another myth of innovation is that it is about wild ideas and experimentation. It is, but is also about discipline, goals, and timelines.

Your innovation skills

As you prepare to engage in innovation in your work setting, how ready are you to be successful? An “innovation self-efficacy

Table 1.1 The 10 faces of innovation

Personas	Face	Description
<i>Learning New Knowledge and Information</i>	Anthropologist	Observes human behavior and understands how people interact with services, products, and physical spaces
	Experimenter	Prototypes and tries new ideas
	Cross-pollinator	An intersector (Medici effect) who brings different ideas from other cultures, organizations, and industries
<i>Organizing Sets the stage and overcomes barriers</i>	Hurdler	Overcomes barriers and constraints
	Collaborator	Brings people together, often with highly diverse perspectives, and acts as a mediator at times
	Director	Finds resources and keeps innovation team on track and on schedule
<i>Building Apply ideas to organizations</i>	Experience architect	Designs experiences that connect with people
	Set designer	Creates the stage on which the innovators work with attention to physical space and function
	Caregiver	Customer advocates who make sure team keeps needs and values of customer in the front and center of the innovation process
	Storyteller	Weaves the personal story around the innovation during the innovation process

Source: With permission from Reference 10.

assessment” is provided in Appendix A that gives you a sense of what innovation skills you possess and where there is opportunity to learn more. The 17 self-efficacy items are grouped into seven innovation categories including:

- Innovation team leadership
- Defining an innovation challenge
- Deep dive assessment
- Idea generation and selection
- Prototyping and testing
- Diffusion of innovations
- Innovation mentorship

Rate how confident you feel on these 17 innovation items on a scale of 1–10. Periodically, come back to this self-assessment and see how you are growing as an innovator.

Open innovation

Innovation is a team sport, requiring the inputs and insights from multiple perspectives including your customers. The broader the diversity of inputs, the more likely your innovation is to appeal to potential users. It is highly unlikely that you will have all the insights, knowledge, and skills to produce innovations on your own. Look for opportunity to collaborate across specialties, clinical units, organizations, or even economic domains.¹¹ The ability to bring cross-pollinator and collaborator skills to your innovation efforts will accelerate your ability to rapidly innovate in your organization.

Open innovation is a rapidly growing business model in other economic sectors. For instance, Proctor & Gamble has developed an initiative called Connect and Develop. P&G has an extensive network of innovation scouts that find small companies developing products. P&G provides capital, licenses, or purchases these products, and then takes them to market (the best example is the Swiffer brush).

In healthcare, open models have been used in quality collaboratives¹² and more recently in learning networks. For example, the Innovation Learning Network (ILN) is a cooperative of large healthcare organizations (see Figure 1.3) that work together both in person and remotely on innovating on common issues for member organizations. They have developed an open innovation toolkit that can be found at *iln-public.pbwiki.com/2006ILNLearnings*.

An innovation story: Greenfield Health System

Stories are often an effective way of learning how innovation strategies can be applied in real world settings. Throughout this guidebook, you will find illuminating examples of how healthcare organizations have tackled innovation challenges in their environment.

Starting below, you will also find a synthetic story of a made-up healthcare organization, and how they applied innovation principles and methods to integrating innovation into their daily work. This story will successively unfold across the chapters to illustrate applications of the methods described in the chapter.

Greenfield Health Systems is a small physician-hospital organization that is composed of a 220-bed community hospital and a physician network of 80 physicians in 24 practices, both single and multispecialty. Greenfield has been actively involved with improvement efforts, including participation in the Institute for Healthcare Improvement's 5 Million Lives Campaign. The Chief Executive Officer, Mr Seawright, in consultation with the Chief Nursing Officer, Ms Highcare, has concluded that the health reform pressures from Washington will require them to become more nimble for change and more efficient in delivering care. They realized that they needed to be more "innovative" in the services and business strategies that they use. Ms Highcare identifies a nurse on 4E who seems to have a bent for doing things differently, and has designed a number of new ways of working on the unit. This nurse is appointed the "head" of a new innovation team, with representatives from the medical staff, pharmacy, ancillary services, and administration. Although from diverse backgrounds and with different agendas, this team feels empowered by the CEO and the health system board.

How to use this guidebook

This guidebook is organized based on the five steps of the innovation process outlined in the model above. Each chapter is dedicated to a step in the process and offers selected tools to go through the step. Every chapter has (a) an overview of the innovation step, (b) a tool package useful for the step, and (c) a set of resources. In addition, an example healthcare organization confronting an innovation challenge is presented that is used to illustrate the core activities for each innovation step.

This guidebook is not intended to be read at a single setting, but to provide ideas and tools based on the starting point of the user. These steps are however linked, and should be seen as a high-level "system" of innovation processes that will get more efficient with practice.

You are encouraged to read, digest, and try the processes and tools described in each chapter. You are encouraged as well to adapt and disseminate any of the tools, models, or examples used in this guide. Our goal is to provide a learning catalyst that enables you to become an effective innovator in your healthcare organization.

Good luck on your journey!

Appendix A: clinical innovation self-efficacy

We would like to know how confident you are in doing certain activities. For each of the following questions, please choose the number that corresponds to your confidence that you can do the tasks regularly at the present time.

- 1

How confident do you feel that you can work with a clinical team to define and prioritize the innovation goal?

not at all confident

1

2

3

4

5

6

7

8

9

10

totally confident
- 2

How confident do you feel exploring mental models?

not at all confident

1

2

3

4

5

6

7

8

9

10

totally confident
- 3

How confident do you feel that you can assist a clinical team explore and explain its values and preferences?

not at all confident

1

2

3

4

5

6

7

8

9

10

totally confident
- 4

How confident do you feel that you can assist a clinical team to examine and understand patterns and trends?

not at all confident

1

2

3

4

5

6

7

8

9

10

totally confident
- 5

How confident do you feel that you can assist a clinical team complete a microsystem assessment?

not at all confident

1

2

3

4

5

6

7

8

9

10

totally confident
- 6

How confident do you feel that you perform process mapping of a care delivery system?

not at all confident

1

2

3

4

5

6

7

8

9

10

totally confident
- 7

How confident do you feel that you can map and understand the human interaction dynamics in a care delivery system?

not at all confident

1

2

3

4

5

6

7

8

9

10

totally confident
- 8

How confident do you feel that you can generate testable ideas?

not at all confident

1

2

3

4

5

6

7

8

9

10

totally confident

- 9

How confident do you feel that you can lead a brainstorming session?

not at all confident

1

2

3

4

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7

8

9

10

totally confident
- 10

How confident do you feel that you can select an idea to test?

not at all confident

1

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3

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5

6

7

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9

10

totally confident
- 11

How confident do you feel that you can build a material prototype including scale models?

not at all confident

1

2

3

4

5

6

7

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9

10

totally confident
- 12

How confident do you feel that you can build a mathematical prototype?

not at all confident

1

2

3

4

5

6

7

8

9

10

totally confident
- 13

How confident do you feel that you can organize and conduct an experience prototype?

not at all confident

1

2

3

4

5

6

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8

9

10

totally confident
- 14

How confident do you feel that you can find or design performance measures as element of test?

not at all confident

1

2

3

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5

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8

9

10

totally confident
- 15

How confident do you feel that you can present results of prototype test using a storyboard?

not at all confident

1

2

3

4

5

6

7

8

9

10

totally confident
- 16

How confident do you feel that you understand dissemination (diffusion) strategies for broad implementation of an idea?

not at all confident

1

2

3

4

5

6

7

8

9

10

totally confident
- 17

How confident do you feel that you can teach and assist others in performing innovation activities?

not at all confident

1

2

3

4

5

6

7

8

9

10

totally confident

Scoring

The score for each item is the number circled. If two consecutive numbers are circled, code the lower number (less self-efficacy). If the numbers are not consecutive, do not score the item. The score for the scale is the mean of the 17 items. If more than 2 items are missing, do not score the scale. Higher number indicates higher self-efficacy.

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